ALP2

cobas®

Alkaline Phosphatase acc. to IFCC Gen.2

Order information

REF		CONTENT		Analyzer(s) on which **cobas c** pack(s) can be used
03333752190	03333752500	Alkaline Phosphatase acc. to IFCC Gen.2 ALP2S (200 tests)	System-ID 07 6761 1	**cobas c** 311, **cobas c** 501/502, COBAS INTEGRA 400 plus
03333701190	03333752500	Alkaline Phosphatase acc. to IFCC Gen.2 ALP2L (400 tests)	System-ID 07 6760 3	**cobas c** 311, **cobas c** 501/502, COBAS INTEGRA 400 plus

Materials required (but not provided):

		cobas c 311, **cobas c** 501/502	COBAS INTEGRA 400 plus
10759350190	Calibrator f.a.s. (12 x 3 mL)	Code 401	System-ID 07 3718 6
12149435122	Precinorm U plus (10 x 3 mL)	Code 300	System-ID 07 7999 7
12149443122	Precipath U plus (10 x 3 mL)	Code 301	System-ID 07 8000 6
05117003190	PreciControl ClinChem Multi 1 (20 x 5 mL)	Code 391	System-ID 07 7469 3
05947626190	PreciControl ClinChem Multi 1 (4 x 5 mL)	Code 391	System-ID 07 7469 3
05117216190	PreciControl ClinChem Multi 2 (20 x 5 mL)	Code 392	System-ID 07 7470 7
05947774190	PreciControl ClinChem Multi 2 (4 x 5 mL)	Code 392	System-ID 07 7470 7
04489357190	Diluent NaCl 9 % (50 mL)	System-ID 07 6869 3	n.a.

English

Intended use

In vitro test for the quantitative determination of alkaline phosphatase in human serum and plasma on **cobas c** and COBAS INTEGRA systems.

Summary

Measurement of alkaline phosphatase with this assay in human serum and plasma is used to aid in the diagnosis and monitoring of liver diseases and bone diseases.

Alkaline phosphatases (EC 3.1.3.1) are membrane-bound ectoenzymes that catalyze the hydrolysis of monophosphates from ester linkage under alkaline conditions (pH 8 to 10).[1] Alkaline phosphatase isoforms are encoded by four different genes: the liver-bone-kidney (tissue-nonspecific) variant, the intestinal variant, the placental variant and the variant from the germ cells (placental-like).[1,2] Alkaline phosphatase activity is present in various tissues, but its concentration varies, and the highest concentrations are typically found in the liver and bone. Although the exact metabolic function of the enzyme is not yet understood, it appears that it is associated with lipid transport in the intestine, with the calcification process in bone, and with host defense through endotoxin dephosphorylation. Minimal amounts of intestinal alkaline phosphatase may also be present and are subjected to increase after a meal.[2]

Total serum alkaline phosphatase measurement is used extensively as a clinical indicator of liver and bone health.[1,2,3,4,5,6,7,8,9] Any form of biliary tree obstruction induces the synthesis of alkaline phosphatase by hepatocytes, therefore a rise in the alkaline phosphatase activity in serum occurs with all forms of cholestasis and particularly with obstructive jaundice.[2,3,4,5] It is also elevated in diseases of the skeletal system associated with increased osteoblastic activity, such as Paget's disease, hyperparathyroidism, rickets and osteomalacia, as well as with fractures and malignant tumors.[1,6,7,8,9,10] A physiologic rise in the alkaline phosphatase activity is sometimes seen in children and juveniles. It is caused by increased osteoblast activity following accelerated bone growth.[1,2,10]

Decreased total alkaline phosphatase activity is rarely found in human serum but can occur in hypophosphatasia, in multiple myeloma with osteolytic lesions, secondary to growth hormone deficiency or in hypoparathyroidism.[1,10]

The assay method was first described by King and Armstrong, modified by Ohmori, Bessey, Lowry and Brock and later improved by Hausamen et al.[11,12,13,14] In 2011 the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC) Scientific Division, Committee on Reference Systems of Enzymes (C-RSE) recommended a reference procedure for the determination of alkaline phosphatase using an optimized substrate concentration and 2-amino-2-methyl-1-propanol as buffer plus the cations magnesium and zinc at 37 °C.[15] This assay follows the recommendations of the IFCC, but was optimized for performance and stability.

Test principle[15]

Colorimetric assay in accordance with a standardized method.
In the presence of magnesium and zinc ions, p-nitrophenyl phosphate is cleaved by phosphatases into phosphate and p-nitrophenol.

$$\text{p-nitrophenyl phosphate} + H_2O \xrightarrow{\text{ALP}} \text{phosphate} + \text{p-nitrophenol}$$

The p-nitrophenol released is directly proportional to the catalytic ALP activity. It is determined by measuring the increase in absorbance.

Precautions and warnings

For in vitro diagnostic use for health care professionals. Exercise the normal precautions required for handling all laboratory reagents.

Infectious or microbial waste:
Warning: handle waste as potentially biohazardous material. Dispose of waste according to accepted laboratory instructions and procedures.

Environmental hazards:
Apply all relevant local disposal regulations to determine the safe disposal.

Safety data sheet available for professional user on request.

This kit contains components classified as follows in accordance with the Regulation (EC) No. 1272/2008:

Warning

H315	Causes skin irritation.
H319	Causes serious eye irritation.

Prevention:

P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ eye protection/ face protection.

Response:

P302 + P352	IF ON SKIN: Wash with plenty of water.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.

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P362 + P364 Take off contaminated clothing and wash it before reuse.

Product safety labeling follows EU GHS guidance.

Contact phone: all countries: +49-621-7590

Reagent handling

Ready for use

Specimen collection and preparation

For specimen collection and preparation only use suitable tubes or collection containers.

Only the specimens listed below were tested and found acceptable.
Serum.
Plasma: Li-heparin plasma.

The sample types listed were tested with a selection of sample collection tubes that were commercially available at the time of testing, i.e. not all available tubes of all manufacturers were tested. Sample collection systems from various manufacturers may contain differing materials which could affect the test results in some cases. When processing samples in primary tubes (sample collection systems), follow the instructions of the tube manufacturer.

Centrifuge samples containing precipitates before performing the assay.

See the limitations and interferences section for details about possible sample interferences.

Stability:[16]	7 days at 20-25 °C
	7 days at 4-8 °C
	2 months at -20 °C (± 5 °C)

Freeze only once.

Materials provided

See "Reagents – working solutions" section for reagents.

Materials required (but not provided)

- See "Order information" section
- General laboratory equipment

Assay

For optimum performance of the assay follow the directions given in this document for the analyzer concerned. Refer to the appropriate operator's manual for analyzer-specific assay instructions.

The performance of applications not validated by Roche is not warranted and must be defined by the user.

Calculation

The systems automatically calculate the analyte concentration of each sample.

Conversion factor: U/L x 0.0167 = µkat/L

Expected values

(measured at 37 °C)

Adults[17]

Males (n = 221)	40-129 U/L	(0.67-2.15 µkat/L)
Females (n = 229)	35-104 U/L	(0.58-1.74 µkat/L)

Children[18]

Males

Age		
0 – 14 days	83-248 U/L	(1.39-4.14 µkat/L)
15 days – < 1 year	122-469 U/L	(2.04-7.83 µkat/L)
1 – < 10 years	142-335 U/L	(2.37-5.59 µkat/L)
10 – < 13 years	129-417 U/L	(2.15-6.96 µkat/L)
13 – < 15 years	116-468 U/L	(1.94-7.82 µkat/L)
15 – < 17 years	82-331 U/L	(1.37-5.53 µkat/L)
17 – < 19 years	55-149 U/L	(0.92-2.49 µkat/L)

Females

Age		
0 – 14 days	83-248 U/L	(1.39-4.14 µkat/L)
15 days – < 1 year	122-469 U/L	(2.04-7.83 µkat/L)
1 – < 10 years	142-335 U/L	(2.37-5.59 µkat/L)
10 – < 13 years	129-417 U/L	(2.15-6.96 µkat/L)
13 – < 15 years	57-254 U/L	(0.95-4.24 µkat/L)
15 – < 17 years	50-117 U/L	(0.84-1.95 µkat/L)
17 – < 19 years	45-87 U/L	(0.75-1.45 µkat/L)

Each laboratory should investigate the transferability of the expected values to its own patient population and if necessary determine its own reference ranges.

cobas c systems

System information

For **cobas c** 311/501 analyzers:
ALP2S: ACN 158
ALP2L: ACN 683
For **cobas c** 502 analyzer:
ALP2S: ACN 8158
ALP2L: ACN 8683

Reagents - working solutions

R1	2-amino-2-methyl-1-propanol: 1.724 mol/L, pH 10.44 (30 °C); magnesium acetate: 3.83 mmol/L; zinc sulfate: 0.766 mmol/L; N-(2-hydroxyethyl)-ethylenediamine triacetic acid: 3.83 mmol/L
R2	p-nitrophenyl phosphate: 132.8 mmol/L, pH 8.50 (25 °C); preservatives

R1 is in position B and R2 is in position C.

Storage and stability

Shelf life at 2-8 °C:	See expiration date on **cobas c** pack label.
On-board in use and refrigerated on the analyzer:	8 weeks

Applications for serum and plasma

cobas c 311 **test definition**

Assay type	Rate A		
Reaction time / Assay points	10 / 13-31		
Wavelength (sub/main)	480/450 nm		
Reaction direction	Increase		
Units	U/L (µkat/L)		
Reagent pipetting		Diluent (H_2O)	
R1	75 µL	25 µL	
R2	17 µL	21 µL	
Sample volumes	*Sample*	*Sample dilution*	
		Sample	*Diluent (NaCl)*
Normal	2.8 µL	–	–
Decreased	2.8 µL	20 µL	80 µL
Increased	2.8 µL	–	–

cobas c 501 **test definition**

Assay type	Rate A
Reaction time / Assay points	10 / 19-48
Wavelength (sub/main)	480/450 nm

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Reaction direction	Increase		
Units	U/L (µkat/L)		
Reagent pipetting		Diluent (H_2O)	
R1	75 µL	25 µL	
R2	17 µL	21 µL	
Sample volumes	*Sample*	*Sample dilution*	
		Sample	*Diluent (NaCl)*
Normal	2.8 µL	–	–
Decreased	2.8 µL	20 µL	80 µL
Increased	2.8 µL	–	–

cobas c 502 **test definition**

Assay type	Rate A		
Reaction time / Assay points	10 / 19-48		
Wavelength (sub/main)	480/450 nm		
Reaction direction	Increase		
Units	U/L (µkat/L)		
Reagent pipetting		Diluent (H_2O)	
R1	75 µL	25 µL	
R2	17 µL	21 µL	
Sample volumes	*Sample*	*Sample dilution*	
		Sample	*Diluent (NaCl)*
Normal	2.8 µL	–	–
Decreased	2.8 µL	20 µL	80 µL
Increased	5.6 µL	–	–

Calibration

Calibrators	S1: H_2O
	S2: C.f.a.s.
Calibration mode	Linear
Calibration frequency	2-point calibration - after reagent lot change - as required following quality control procedures

Calibration interval may be extended based on acceptable verification of calibration by the laboratory.

Traceability: This method has been standardized against the IFCC procedure (2011).[15]

Quality control

For quality control, use control materials as listed in the "Order information" section.

In addition, other suitable control material can be used.

The control intervals and limits should be adapted to each laboratory's individual requirements. Values obtained should fall within the defined limits. Each laboratory should establish corrective measures to be taken if values fall outside the defined limits.

Follow the applicable government regulations and local guidelines for quality control.

Limitations - interference

Criterion: Recovery within ± 10 U/L of initial values of samples ≤ 100 U/L and within ± 10 % for samples > 100 U/L.

Icterus:[19] No significant interference up to an I index of 60 for conjugated and unconjugated bilirubin (approximate conjugated and unconjugated bilirubin concentration: 1026 µmol/L or 60 mg/dL).

Hemolysis:[19] No significant interference up to an H index of 200 (approximate hemoglobin concentration: 124 µmol/L or 200 mg/dL).

Lipemia (Intralipid):[19] No significant interference up to an L index of 2000. There is poor correlation between the L index (corresponds to turbidity) and triglycerides concentration.

Drugs: No interference was found at therapeutic concentrations using common drug panels.[20,21]

In very rare cases, gammopathy, in particular type IgM (Waldenström's macroglobulinemia), may cause unreliable results.[22]

For diagnostic purposes, the results should always be assessed in conjunction with the patient's medical history, clinical examination and other findings.

ACTION REQUIRED

Special Wash Programming: The use of special wash steps is mandatory when certain test combinations are run together on **cobas c** systems. The latest version of the carry-over evasion list can be found with the NaOHD-SMS-SmpCln1+2-SCCS Method Sheets. For further instructions refer to the operator's manual. **cobas c** 502 analyzer: All special wash programming necessary for avoiding carry-over is available via the **cobas** link, manual input is required in certain cases.

Where required, special wash/carry-over evasion programming must be implemented prior to reporting results with this test.

Limits and ranges

Measuring range

5-1200 U/L (0.084-20.0 µkat/L)

Determine samples having higher activities via the rerun function. Dilution of samples via the rerun function is a 1:5 dilution. Results from samples diluted using the rerun function are automatically multiplied by a factor of 5.

Lower limits of measurement

Lower detection limit of the test

5 U/L (0.084 µkat/L)

The lower detection limit represents the lowest measurable analyte level that can be distinguished from zero. It is calculated as the value lying 3 standard deviations above that of the lowest standard (standard 1 + 3 SD, repeatability, n = 21).

Specific performance data

Representative performance data on the analyzers are given below. Results obtained in individual laboratories may differ.

Precision

Precision was determined using human samples and controls in an internal protocol with repeatability (n = 21) and intermediate precision (3 aliquots per run, 1 run per day, 21 days). The following results were obtained on the **cobas c** 501 analyzer:

Repeatability	*Mean*	*SD*	*CV*
	U/L (µkat/L)	*U/L (µkat/L)*	*%*
Precinorm U	99.2 (1.65)	0.7 (0.01)	0.7
Precipath U	241 (4.02)	1 (0.02)	0.6
Human serum 1	54.6 (0.912)	0.5 (0.008)	0.9
Human serum 2	648 (10.8)	4 (0.1)	0.7
Intermediate precision	*Mean*	*SD*	*CV*
	U/L (µkat/L)	*U/L (µkat/L)*	*%*
Precinorm U	92.8 (1.56)	2.2 (0.04)	2.4
Precipath U	224 (3.74)	4 (0.06)	1.7
Human serum 3	82.2 (1.37)	1.8 (0.03)	2.1
Human serum 4	1025 (17.1)	9 (0.2)	0.9

The data obtained on **cobas c** 501 analyzer(s) are representative for **cobas c** 311 analyzer(s).

Method comparison

Alkaline phosphatase values for human serum and plasma samples obtained on a **cobas c** 501 analyzer with the ALP IFCC Gen.2 (ALP2) traceable to IFCC[15] method (y), were compared with those determined on

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the same analyzer with the same ALP2 reagent traceable to IFCC[23] method (x).

Sample size (n) = 106

Passing/Bablok[24]	Linear regression
y = 1.05x + 0.064 U/L	y = 1.04x + 0.388 U/L
τ = 0.993	r = 1.00

The sample activities were between 16.9 and 1149 U/L (0.282 and 19.2 µkat/L).

The data obtained on **cobas c** 501 analyzer(s) are representative for **cobas c** 311 analyzer(s).

COBAS INTEGRA systems

System information

Serum/plasma

cobas c pack ALP2S, Cat. No. 03333752190:
ALP2S: Test-ID 0-551

cobas c pack ALP2L, Cat. No. 03333701190:
ALP2L: Test-ID 0-550

*Serum/plasma-Primary tube**

cobas c pack ALP2S, Cat. No. 03333752190:

AP2SP: Test-ID 0-554

cobas c pack ALP2L, Cat. No. 03333701190:

AP2LP: Test-ID 0-553

*The applications is intended for customers facing non-valid results due to a contamination of the plasma supernatant in primary tubes with cell aggregates.

Reagents - working solutions

R1	2-amino-2-methyl-1-propanol: 1.724 mol/L, pH 10.44 (30 °C); magnesium acetate: 3.83 mmol/L; zinc sulfate: 0.766 mmol/L; N-(2-hydroxyethyl)-ethylenediamine triacetic acid: 3.83 mmol/L
SR	p-nitrophenyl phosphate: 132.8 mmol/L, pH 8.50 (25 °C); preservatives

R1 is in position B and SR is in position C.

Storage and stability

Shelf life at 2-8 °C	See expiration date on **cobas c** pack label
On-board in use at 10-15 °C	4 weeks

Application for serum and plasma

Serum/plasma

Test definition

Measuring mode	Absorbance
Abs. calculation mode	Kinetic
Reaction mode	R1-S-SR
Reaction direction	Increase
Wavelength A/B	409/659 nm
Calc. first/last	41/64
Unit	U/L

Pipetting parameters

		Diluent (H_2O)
R1	75 µL	16 µL
Sample	2.75 µL	20 µL
SR	17 µL	10 µL
Total volume	140.75 µL	

Serum/plasma-Primary tube

Test definition

Measuring mode	Absorbance
Abs. calculation mode	Kinetic
Reaction mode	D-R1-S-SR
Reaction direction	Increase
Wavelength A/B	409/659 nm
Calc. first/last	41/64
Predilution factor	10
Unit	U/L

Pipetting parameters

		Diluent (H_2O)
R1	75 µL	11 µL
Sample	27.5 µL	
SR	17 µL	10 µL
Total volume	140.5 µL	

Calibration

Calibrator	Calibrator f.a.s. Use deionized water as zero calibrator.
Calibration mode	Linear regression
Calibration replicate	Duplicate recommended
Calibration frequency	2 point calibration - after reagent lot change - as required following quality control procedures

Calibration interval may be extended based on acceptable verification of calibration by the laboratory.

Traceability: This method has been standardized against the IFCC procedure (2011).[15]

Quality control

Reference range	Precinorm U plus or PreciControl ClinChem Multi 1
Pathological range	Precipath U plus or PreciControl ClinChem Multi 2
Control interval	24 hours recommended
Control sequence	User defined
Control after calibration	Recommended

For quality control, use control materials as listed in the “Order information” section. In addition, other suitable control material can be used.

The control intervals and limits should be adapted to each laboratory’s individual requirements. Values obtained should fall within the defined limits. Each laboratory should establish corrective measures to be taken if values fall outside the defined limits.

Follow the applicable government regulations and local guidelines for quality control.

Limitations - interference

Criterion: Recovery within ± 10 U/L of initial values of samples ≤ 100 U/L and within ± 10 % for samples > 100 U/L.

Icterus:[19] No significant interference up to an I index of 42 for conjugated bilirubin and 60 for unconjugated bilirubin (approximate conjugated bilirubin concentration: 718 µmol/L or 42 mg/dL; approximate unconjugated bilirubin concentration: 1026 µmol/L or 60 mg/dL).

Hemolysis:[19] No significant interference up to an H index of 250 (approximate hemoglobin concentration: 155 µmol/L or 250 mg/dL).

Lipemia (Intralipid):[19] No significant interference up to an L index of 2000. There is poor correlation between the L index (corresponds to turbidity) and triglycerides concentration.

Drugs: No interference was found at therapeutic concentrations using common drug panels.[20,21]

In very rare cases, gammopathy, in particular type IgM (Waldenström's macroglobulinemia), may cause unreliable results.[22]

For diagnostic purposes, the results should always be assessed in conjunction with the patient's medical history, clinical examination and other findings.

ACTION REQUIRED

Special Wash Programming: The use of special wash steps is mandatory when certain test combinations are run together on COBAS INTEGRA analyzers. Refer to the CLEAN Method Sheet for further instructions and for the latest version of the Extra wash cycle list.

Where required, special wash/carry-over evasion programming must be implemented prior to reporting results with this test.

Limits and ranges

Measuring range

3.0-1200 U/L (0.05-20 µkat/L)

Determine samples having higher activities via the rerun function. Dilution of samples via the rerun function is a 1:5 dilution. Results from samples diluted using the rerun function are automatically multiplied by a factor of 5.

Lower limits of measurement

Lower detection limit of the test:
3.0 U/L (0.05 µkat/L)

The lower detection limit represents the lowest measurable analyte level that can be distinguished from zero. It is calculated as the value lying 3 standard deviations above that of a zero sample (zero sample + 3 SD, repeatability, n = 21).

Specific performance data

Representative performance data on the analyzers are given below. Results obtained in individual laboratories may differ.

Precision

Serum/plasma

Precision was determined using human samples and controls in an internal protocol with repeatability (n = 21) and intermediate precision (1 aliquot per run, 1 run per day, 21 days). The following results were obtained on the COBAS INTEGRA 700 analyzer:

Repeatability	*Mean U/L (µkat/L)*	*SD U/L (µkat/L)*	*CV %*
Precinorm U	80.1 (1.34)	1.3 (0.02)	1.6
Pecipath U	228 (3.81)	4 (0.07)	1.8
Human serum 1	72.7 (1.21)	1.5 (0.03)	2.0
Human serum 2	225 (3.76)	4 (0.07)	1.8

Intermediate precision	*Mean U/L (µkat/L)*	*SD U/L (µkat/L)*	*CV %*
Precinorm U	81.8 (1.37)	2.3 (0.04)	2.8
Pecipath U	230 (3.84)	6 (0.10)	2.8
Human serum 1	70.0 (1.17)	1.9 (0.03)	2.7
Human serum 2	220 (3.67)	6 (0.10)	2.7

The data obtained on COBAS INTEGRA 700 analyzer(s) are representative for COBAS INTEGRA 400 analyzer(s).

Serum/plasma-Primary tube

Precision was determined using human samples and controls in an internal protocol with repeatability (n = 21) and intermediate precision (1 aliquot per run, 1 run per day, 10 days). The following results were obtained the COBAS INTEGRA 700 analyzer:

Repeatability	*Mean U/L (µkat/L)*	*SD U/L (µkat/L)*	*CV %*
Precinorm U	83.7 (1.40)	0.6 (0.01)	0.7
Pecipath U	226 (3.77)	1 (0.02)	0.4
Human serum 1	84.4 (1.41)	0.3 (0.01)	0.4
Human serum 2	217 (3.62)	1 (0.02)	0.4

Intermediate precision	*Mean U/L (µkat/L)*	*SD U/L (µkat/L)*	*CV %*
Precinorm U	84.0 (1.40)	1.8 (0.03)	2.1
Pecipath U	227 (3.80)	4 (0.07)	1.7
Human serum 1	85.7 (1.43)	1.7 (0.03)	2.0
Human serum 2	218 (3.64)	5 (0.08)	2.2

The data obtained on COBAS INTEGRA 700 analyzer(s) are representative for COBAS INTEGRA 400 analyzer(s).

Method comparison

Serum/plasma

ALP values for human serum patient samples obtained on a COBAS INTEGRA 400 plus analyzer with the COBAS INTEGRA ALP IFCC Gen.2 (ALP2) traceable to IFCC[15] method (y), were compared with those determined on the same analyzer with the same ALP2 reagent traceable to IFCC[23] method (x).

COBAS INTEGRA 400 plus analyzer	Sample size (n) = 104
Passing/Bablok[24]	Linear regression
y = 1.04x – 0.078 U/L	y = 1.04x – 0.039 U/L
τ = 0.997	r = 1.00

The sample activities were between 15.0 and 1036 U/L (0.251 and 17.3 µkat/L).

Serum/plasma -Primary tube

ALP values for human serum and plasma samples obtained on a COBAS INTEGRA 700 analyzer with the COBAS INTEGRA ALP IFCC Gen.2 (ALP2L) reagent and the AP2LP application (y) were compared to those determined using the same reagent but the ALP2L application on a COBAS INTEGRA 700 analyzer (x), and to those determined using the previous reagent using the ALP6P application on a COBAS INTEGRA 700 analyzer (x).

COBAS INTEGRA (ALP2L)	Sample size (n) = 54
Passing/Bablok[24]	Linear regression
y = 1.003x – 0.195 U/L	y = 0.999x + 2.11 U/L
τ = 0.976	r = 1.00
SD (md 95) = 9.19	Sy.x = 4.06

The sample activities were between 40 and 1010 U/L (0.668 and 16.9 µkat/L).

COBAS INTEGRA (ALP6P)	Sample size (n) = 67
Passing/Bablok[24]	Linear regression
y = 0.991x + 0.808 U/L	y = 0.997x - 1.35 U/L
τ = 0.976	r = 1.00
SD (md 95) = 7.16	Sy.x = 3.39

The sample activities were between 39 and 862 U/L (0.651 and 15.8 µkat/L).

The data obtained on COBAS INTEGRA 700 analyzer(s) are representative for COBAS INTEGRA 400 analyzer(s).

References

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A point (period/stop) is always used in this Method Sheet as the decimal separator to mark the border between the integral and the fractional parts of a decimal numeral. Separators for thousands are not used.

Any serious incident that has occurred in relation to the device shall be reported to the manufacturer and the competent authority of the Member State in which the user and/or the patient is established.

Symbols

Roche Diagnostics uses the following symbols and signs in addition to those listed in the ISO 15223-1 standard:

CONTENT	Contents of kit
→	Volume for reconstitution
GTIN	Global Trade Item Number
Rx only	For USA: Caution: Federal law restricts this device to sale by or on the order of a physician.

CE 0123

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